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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/612,040	07/03/2003	Myung-Ryul Choi	1293.1733	4263

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EXAMINER	
CHEN, TIANJIE	
ART UNIT	**PAPER NUMBER**
2656	

DATE MAILED: 03/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/612,040	CHOI ET AL.	
	Examiner	Art Unit	
	Tianjie Chen	2656	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 February 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10,13* is/are rejected.

7)☒ Claim(s) *11,12,14 and 15* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

NON-Final Rejection (RCE)

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 02/01/2006 has been entered. Claims 1-15 are pending.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morinaga (JP 8-203259A) in view of Park et al (EP 1 207 532 A2).

Claims 1 and 2, Morinaga shows a disk tray 2 for a disk drive in Fig. 5 that slides in and out of the disk drive 1, the disk tray including one or more dampers 10 mounted on a lower surface of the disk tray (Figs. 1-3) to reduce noise.

Morinaka does not show that the dampers selectively reduce noise of at least two predetermined frequency bands.

Park et al shows a resonator 40 having two resonant frequency bands, which is shown in Fig. 9 and in Fig. 7 (one at about 49 Hz and another one at about 70Hz), which roughly match natural resonance frequency of the movable plate. ([0017], lines

3-4) thus effectively reduce a vibration (noise) generated when a disk spins ([0007]). One of ordinary skill in the art would have been motivated to use the resonator taught by Park et al to replace Morinaga's dampers thus tuning the resonance frequency bands of the resonators roughly matching the natural frequency band of the tray thus effectively reducing the vibration (noise) generated in the device. In thus constructed device, the resonators selectively reduce noise of two predetermined frequency bands.

Claim 2, in above constructed device, each of the one or more resonators from Park et al includes: a through hole penetrating the disk tray and operating as an entrance and a bottle neck of each resonator (Fig. 3); and a resonance container surrounding the through hole and having a predetermined volume; the predetermined frequency bands are inherently determined according to an area of a profile of the through hole, a length of the bottle neck of the through hole, and a volume of the resonance container.

Claim 5, as described above, Morinaka and park et al show a disk drive including: a disk tray that slides in and out of the disk drive and on which a disk is placed; a disk driving portion rotating the disk at a predetermined speed, and two or more resonators installed on a lower surface of the disk tray to selectively reduce noise of two predetermined frequency bands. Park further shows a disk chucking apparatus 57 holding the disk on the disk driving portion; a data recording/reproducing unit 55 recording data on the disk or reproducing data from the disk.

Claim 6, as described above, Morinaka and park et al show each of the two or more resonators comprises: a through hole penetrating the disk tray and operating as an entrance and a bottle neck of each resonator; and a resonance container surrounding the through hole and having a predetermined volume, the predetermined

frequency band being determined according to an area of a profile of the through hole, a length of the bottle neck of the through hole, and a volume of the resonance container.

Claim 9, as described above, Morinaka and Park et al shows a resonator system having a plurality of resonator for a disk tray of a disk drive, each of the resonators including: a through hole penetrating the disk tray and operating as an entrance and a bottle neck of the resonator: and a resonance container surrounding the through hole and having a predetermined volume, the resonator being mounted on the disk tray to selectively reduce noise of a predetermined frequency band, the predetermined frequency band being determined according to an area of a profile of the through hole, a length of the bottle neck of the through hole, and the volume of the resonance container, wherein each of the resonators inherently converts sound energy to thermal energy to reduce a sound pressure level of a resonance frequency to selectively absorb a specific frequency, and wherein at least two of the resonators respectively reduce noise of two different frequency bands.

Claims 3 and 7, Park et al further shows that the resonator further includes an absorbing member (air) filling the resonance container ([0030]).

Claims 4 and 8, Park et al further shows a bottom surface of the resonance container is open (Fig. 5).

Claim 10, Park et al shows that at least one of the resonators further comprises an absorbing member (air) filling the resonance container to selectively reduce noise of a frequency band higher than the predetermined frequency band at 15 Hz (Fig. 7).

Claim 13, as described above, the combination of Morinaga and Park et al discloses a resonator for a disk tray of a disk drive, comprising: a through hole

penetrating the disk tray and operating as an entrance and a bottle neck of the resonator; and a resonance container surrounding the through hole and having a predetermined volume, the resonator being mounted on the disk tray to selectively reduce noise of a predetermined frequency band, the predetermined frequency band being determined according to an area of a profile of the through hole, a length of the bottle neck of the through hole, and the volume of the resonance container; wherein the resonator converts sound energy to thermal energy to reduce a sound pressure level of a resonance frequency to selectively absorb a specific frequency; and wherein the resonator further comprises an absorbing member filling the resonance container to selectively reduce noise of a frequency band larger than the predetermined frequency band.

Allowable Subject Matter

3. Claims 11, 12, 14, and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

- With regard to claims 11, 12, 14, and 15, as the closest reference on record, the combination of Morinaka (JP 8-203259A) and Park et al (EP 1 207 532 A2) shows a resonator having a resonance container for a disk tray, which is being mounted on the disk tray to selectively reduce noise of a predetermined frequency band, the predetermined frequency band being determined according to an area of a profile of the through hole, a length of the bottle neck of the through hole, and the volume of the resonance container, an absorbing member filling the resonance container to selectively reduce noise of a frequency band; the absorbing member filling the resonance container to selectively reduce noise

of a frequency band higher than the predetermined frequency band; but fails to show the absorbing member filling the resonance container is a porous member or a sponge.

- Applicant asserts that by filling the resonance container with a porous member the high frequency noise band and the overall noise level can be reduced (Specification, [0041])

Response to Arguments

4. Applicant's arguments filed 02/01/2006 have been fully considered but they are not persuasive.

- Applicant states in [0031) "in a box having an arbitrary geometrical shape and a certain volume, a resonance phenomenon occurs as the sound pressure level is amplified at a particular noise frequency, that is, at a resonance frequency. The arbitrary geometrical shape generating a resonance phenomenon is referred to as a resonator." Park et al's damper meets this definition; therefore, it is a resonator.
- Park et al shows at least two resonance frequency bands.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tianjie Chen whose telephone number is 571-272-7570. The examiner can normally be reached on 8:00-4:30, Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa Nguyen can be reached on 571-272-7579. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TIANJIE CHEN
PRIMARY EXAMINER